

CLAIM LISTING

No claims have been amended, canceled, or added. A Claim Listing is provided as a courtesy.

1. (Previously Presented) An image sensor comprising:
 - a plurality of pixels formed in a semiconductor substrate, each pixel including a light sensitive element;
 - a micro-lens over each of said light sensitive elements; and
 - a raised ridge structure surrounding each of said micro-lenses, wherein said raised ridge structure has a triangular cross-section and at least partially supports said micro-lens, wherein the micro-lens overlays a base portion of the raised ridge structure.
2. (Original) The image sensor of Claim 1 wherein said raised ridge structure is circular.
3. (Previously Presented) The image sensor of Claim 1 wherein said raised ridge structure confines said micro-lens.
4. (Original) The image sensor of Claim 1 wherein the micro-lenses are formed from polymethylmethacrylate (PMMA) or polyglycidylmethacrylate (PGMA).
5. (Previously Presented) The image sensor of Claim 1 wherein said raised ridge structure has a height of about 0.2 microns.
6. (Original) The image sensor of Claim 1 wherein said raised ridge structure is formed from the same material that underlies said micro-lenses.
7. (Original) The image sensor of Claim 1 further including a color filter layer between said micro-lenses and said light sensitive elements.

8. (Previously Presented) A pixel of an image sensor comprising:
a light sensitive element formed in a semiconductor substrate;
a micro-lens over said light sensitive element; and
a raised ridge structure surrounding said micro-lens, wherein said raised ridge structure has a triangular cross-section and at least partially supports said micro-lens, wherein the micro-lens overlays a base portion of the raised ridge structure.

9. (Original) The pixel of Claim 8 wherein said raised ridge structure is circular.

10. (Previously Presented) The pixel of Claim 8 wherein said raised ridge structure confines said micro-lens.

11. (Original) The pixel of Claim 8 wherein the micro-lens is formed from polymethylmethacrylate (PMMA) or polyglycidylmethacrylate (PGMA).

12. (Previously Presented) The pixel of Claim 8 wherein said raised ridge structure has a height of about 0.2 microns.

13. (Original) The pixel of Claim 8 wherein said raised ridge structure is formed from the same material that underlies said micro-lenses.

14. (Original) The pixel of Claim 8 further including a color filter layer between said micro-lens and said light sensitive element.

15. (Previously Presented) A method of forming a pixel of an image sensor comprising:

forming a light sensitive element in a semiconductor substrate;
forming a top planarizing layer over said light sensitive element;
isotropically etching the top planarizing layer to form a raised structure over said top planarizing layer, said raised ridge structure encompassing said light sensitive element; and

forming a microlens within the interior of said raised ridge structure and over said light sensitive element, wherein said raised ridge structure has a triangular cross-section and at least partially supports said micro-lens, wherein the micro-lens overlays a base portion of the raised ridge structure.

16. (Original) The method of Claim 15 wherein said raised ridge structure is formed in said top planarizing layer.

17. (Previously Presented) The method Claim 15 wherein said raised ridge structure confines said micro-lens.

18. (Original) The method of Claim 15 wherein said raised ridge structure is a closed shape.

19. (Original) The method of Claim 15 further including forming a color filter layer between said micro-lens and said light sensitive element.